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Estimates of Cosmological Parameters Using the CMB Angular Power Spectrum of ACBAR

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abstract We report an investigation of cosmological parameters based on the measurements of anisotropy in the cosmic microwave background radiation (CMB) made by . We use the data in concert with other recent CMB measurements to derive Bayesian estimates of parameters in inflation-motivated adiabatic cold dark matter models. We apply a series of additional cosmological constraints on the shape and amplitude of the density power spectrum, the Hubble parameter and from supernovae to further refine our parameter estimates. Previous estimates of parameters are confirmed, with sensitive measurements of the power spectrum now ranging from $\ell \sim 3$ to 2800. Comparing individual best model fits, we find that the addition of Ω_Λ as a parameter dramatically improves the fits. We also use the high-ℓ data of , along with similar data from CBI and BIMA, to investigate potential secondary anisotropies from the Sunyaev-Zeldovich effect. We show that the results from the three experiments are consistent under this interpretation, and use the data, combined and individually, to estimate σ_8 from the the Sunyaev-Zeldovich component.